

Amendments to the Claims:

This listing of claims will replace all prior listings of claims in the application.

Listing Of Claims:

Claim 1 (currently amended). A zoom lens in/from which a magnification changing optical unit for changing an overall focal length of said zoom lens can be inserted/removed, characterized in that

a wobbling unit which can be amplitude-driven in an optical axis direction to detect a best imaging position is placed closer to an image side than an insertion position of said magnification changing optical unit and

a light amount adjustment stop is placed closer to the object side than said magnification changing optical unit.

Claim 2 (original). A lens according to claim 1, wherein said zoom lens sequentially includes, from an object side, a first unit which is fixed in magnification changing operation and has a positive refractive power, a second unit which moves in the optical axis direction in magnification changing operation and has a negative refractive power, a third unit for correcting an image plane fluctuation accompanying magnification changing operation, and a fourth unit having a positive refractive power for imaging, and a magnification changing optical unit which changes the overall focal length of said zoom lens can be inserted/removed in/from said fourth unit.

Claims 3-11 (cancelled).

Claim 12 (previously amended). A photographing system comprising said zoom lens defined in claim 1 and a camera on which said zoom lens is mounted.

Claims 13 and 14 (cancelled).

Claim 15 (previously amended). A lens according to claim 16, wherein when said wobbling unit is placed in said fourth unit amplitude-driven to make an amplitude halfwidth of a backfocus change amount become 1/2 a depth of focus,

$$|\alpha 2(S2 - E2)/fw2| < 2.2$$

is satisfied, where α_2 is an angle of an off-axis principal ray incident on the object-side principal plane of said wobbling unit (with insertion of said magnification changing optical unit), S_2 is a distance to the stop viewed from the object-side principal plane of said wobbling unit (with insertion of said magnification changing optical unit), E_2 is a distance to the image pickup plane viewed from the image-side principal plane of said wobbling unit (with insertion of said magnification changing optical unit), and fw_2 is a focal length at the wide-angle end with insertion of said magnification changing optical unit.

Claim 16 (currently amended). A zoom lens sequentially comprising, from an object side:

a first unit which is fixed in magnification changing operation and has a positive refractive power;

a second unit which moves in the optical axis direction in magnification changing operation and has a negative refractive power;

a third unit for correcting an image plane fluctuation accompanying magnification changing operation;

a fourth unit having a positive refractive power for imaging;

a magnification changing optical unit which changes the overall focal length of said zoom lens can be inserted/removed in/from said fourth unit; and

a wobbling unit which can be amplitude-driven in an optical axis direction to detect a best imaging position is placed closer to an image side than an insertion position of said magnification changing optical unit,

wherein a light amount adjustment stop is placed closer to the object side than said ~~fourth unit~~ magnification changing optical unit, and wherein when said wobbling unit is placed in said fourth unit and amplitude-driven to make an amplitude halfwidth of a backfocus change amount become $1/2$ a depth of focus,

$$|\alpha_1(S_1 - E_1)/fw_1| < 0.6$$

is satisfied, where α_1 is an angle of an off-axis principal ray incident on an object-side principal plane of said wobbling unit (without insertion of said magnification changing

optical unit), S1 is a distance to a said stop viewed from the object-side principal plane of said wobbling unit (without insertion of said magnification changing optical unit), E1 is a distance to an image pickup plane viewed from an image-side principal plane of said wobbling unit (without insertion of said magnification changing optical unit), and fw1 is a focal length at a wide-angle end without insertion of said magnification changing optical unit.

Claim 17 (previously presented). A lens according to claim 16, wherein in said fourth unit,

$$-0.001 < \phi 4b / l_m < 0.0015$$

is satisfied, where $\phi 4b$ is a refractive power of a lens unit located immediately before said wobbling unit in said fourth unit, and l_m is an image size of an image pickup element.

Claim 18 (previously presented). A lens according to claim 16, wherein said wobbling unit is placed closest to the image side in said fourth unit.

Claim 19 (previously presented). A lens according to claim 16, wherein part of said fourth unit is retracted on the optical axis by inserting said magnification changing optical unit.

Claim 20 (previously presented). A lens according to claim 16, wherein an optical system for macro photographing and flange-back adjustment is placed closer to the image side than said wobbling unit in said fourth unit, and said optical system can integrally move in macro photographing and flange-back adjustment.

Claim 21 (previously presented). A lens according to claim 16, wherein an optical system for macro photographing and flange-back adjustment is placed closer to the image side than said wobbling unit in said fourth unit, and said optical system comprises a lens unit fixed in macro photographing and flange-back adjustment and a lens unit which can move in macro photographing and flange-back adjustment.

Claim 22 (previously presented). A lens according to claim 16, wherein an amplitude halfwidth of the wobbling unit before/after insertion of said magnification changing optical unit is

$$\Delta x_2 = F \cdot \Delta x_1$$

where Δx_1 is an amplitude halfwidth of the wobbling unit before insertion of the magnification changing optical unit, Δx_2 is an amplitude halfwidth of the wobbling unit after insertion of the magnification changing optical unit, and F is a rate of change of F-number due to insertion/removal of the magnification changing optical unit.

Claim 23 (previously presented). A photographing system comprising said zoom lens defined in claim 16, and a camera on which said zoom lens is mounted.

Claim 24 (currently amended). A zoom lens sequentially comprising, from an object side:

a first unit which is fixed in magnification changing operation and has a positive refractive power;

a second unit which moves in the optical axis direction in magnification changing operation and has a negative refractive power;

a third unit for correcting an image plane fluctuation accompanying magnification changing operation;

a fourth unit having a positive refractive power for imaging;

a magnification changing optical unit which changes the overall focal length of said zoom lens can be inserted/removed in/from said fourth unit; and

a wobbling unit which can be amplitude-driven in an optical axis direction to detect a best imaging position is placed closer to an image side than an insertion position of said magnification changing optical unit,

wherein a light amount adjustment stop is placed closer to the object side than said ~~fourth unit~~ magnification changing optical unit, and wherein when said wobbling unit is placed in said fourth unit amplitude-driven to make an amplitude halfwidth of a backfocus change amount become 1/2 a depth of focus,

$$|\alpha_2(S_2 - E_2)/f_{w2}| < 2.2$$

is satisfied, where α_2 is an angle of an off-axis principal ray incident on the object-side principal plane of said wobbling unit (with insertion of said magnification changing optical unit), S_2 is a distance to the stop viewed from the object-side principal plane of said

wobbling unit (with insertion of said magnification changing optical unit), E2 is a distance to the image pickup plane viewed from the image-side principal plane of said wobbling unit (with insertion of said magnification changing optical unit), and fw2 is a focal length at the wide-angle end with insertion of said magnification changing optical unit.

Claim 25 (previously presented). A lens according to claim 24, wherein in said fourth unit,

$$-0.001 < \phi 4b / l_m < 0.0015$$

is satisfied, where $\phi 4b$ is a refractive power of a lens unit located immediately before said wobbling unit in said fourth unit, and l_m is an image size of an image pickup element.

Claim 26 (previously presented). A lens according to claim 24, wherein said wobbling unit is placed closest to the image side in said fourth unit.

Claim 27 (previously presented). A lens according to claim 24, wherein part of said fourth unit is retracted on the optical axis by inserting said magnification changing optical unit.

Claim 28 (previously presented). A lens according to claim 24, wherein an optical system for macro photographing and flange-back adjustment is placed closer to the image side than said wobbling unit in said fourth unit, and said optical system can integrally move in macro photographing and flange-back adjustment.

Claim 29 (previously presented). A lens according to claim 24, wherein an optical system for macro photographing and flange-back adjustment is placed closer to the image side than said wobbling unit in said fourth unit, and said optical system comprises a lens unit fixed in macro photographing and flange-back adjustment and a lens unit which can move in macro photographing and flange-back adjustment.

Claim 30 (previously presented). A lens according to claim 24, wherein an amplitude halfwidth of the wobbling unit before/after insertion of said magnification changing optical unit is

$$\Delta x_2 = F \cdot \Delta x_1$$

where Δx_1 is an amplitude halfwidth of the wobbling unit before insertion of the magnification changing optical unit, Δx_2 is an amplitude halfwidth of the wobbling unit after insertion of the magnification changing optical unit, and F is a rate of change of F-number due to insertion/removal of the magnification changing optical unit.

Claim 31 (previously presented). A photographing system comprising said zoom lens defined in claim 24, and a camera on which said zoom lens is mounted.